

Work Order ID 69957

Wednesday, May 25, 2011 9:56:07 AM

Page 1

Item ID: D206-667-207BL

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Mid Aft

Start Date: 5/25/2011 Start Qty: 1.00

Required Date: 5/27/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference: **REWORK**

Approvals:

Process Plan: *W*

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

IIN-D206-667

D

100

0.00



DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-207

@CHG001

J 11/06/03

CL 11-6-3

195

0.00



SprayPaint

Spray Painting

Memo

0.00

PULL

1 X D206-667-207BL B65370

-REMOVE CLAMPS MS21920-20

AND DISCARD - DO NOT REMOVE SUPPORTS

-REMOVE ALL PAINT USING LINE MATE, DO NOT REMOVE ANY

MATERIAL

-RE-ALODINE

11-05-31

Work Order ID 69957

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Required Date: 5/27/2011 Req'd Qty: 1.00



Customer:

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Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

196

0.00



QC

Memo

0.00

Quality Control

RE-INSPECT

Sub 131

XL

200

0.00



SprayPaint

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with as per QSI 005 4.2

DELFLEET BLUE B 115985

DELFLEET CLEAR B 117101

PRIME:

Start Time: 8:00

Finish Time: 8:20

PAINT:

Start Time: 1:00

Finish Time: 2:00

ET 11-05-31

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Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	QC14- Inspect Spray Paint	0.00							
QC		0.00							
Quality Control	Memo Wrap in plastic bag to protect from scratches								
220	Crosstubes	0.00							
Crosstubes		0.00							
Crosstubes	Memo 1-Install nut plates as per Dwg D206-667-247.								
230	Skidtubes	0.00							
Crosstubes		0.00							
Crosstubes	Memo 1-Install supports and clamps as per Dwg D206-667-247. Torque clamps to 80-100 in lb								

nut plates already installed
as per B 65370

BT 11-06-01

P10

Dart Aerospace Ltd

W/O: 69951		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11 06 01	230	install new 3595-063-450 rubber cushions B68893 x4	BT	11 06 01	4	11.06.02	8 11.06.03

Part No: D206-667-207 BL PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 69957

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Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

S u l 66601



He inspects to Rec A Day

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

11/6/352

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

S u l 66603



Work Order ID 69957

Page 5

Wednesday, May 25, 2011 9:56:07 AM

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Item Name: Crosstube Mid Aft

Start Date: 5/25/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 5/27/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270 	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-207 Location: _____ PPP Rev: <u>DRAFT</u>								
280 	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

14/6/13 C

11/6/18 DJ

11.06.08

Picklist Print

• Wednesday, May 25, 2011 9:56:05 AM

Page 1

Work Order ID: 69957



Parent Item: D206-667-207BL



Parent Item Name: Crosstube Mid Aft

Start Date: 5/25/2011

Required Date: 5/27/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: RevA 11.01.13 New Issue EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D206-667-207BL		Manufactured	No				Each	0.0000		1			
						B 65370							
Crosstube Mid Aft													
MS21920-22		Purchased	No				Each	95.0000		0			
Clamp(per MIL-DTL-8783C)													

Location

Loc Qty

Loc Code

LG050

95

116207

7

117279

38

117506

50

xy

Picklist Print

Friday, June 03, 2011 7:42:00 AM

Work Order ID: 69957

Parent Item: D206-667-207BL

Parent Item Name: Crosstube Mid Aft



Start Date: 5/25/2011

Required Date: 5/27/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: RevA 11.01.13 New Issue EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN5-10A		Purchased	No				Each	374.0000	x10	10			
---------	--	-----------	----	--	--	--	------	----------	-----	----	--	--	--



Bolt

Location	Loc Qty	Loc Code
ST337	374	
117313	149	
117795	125	
117872	100	

AN5-32A		Purchased	No				Each	220.0000	x4	4			
---------	--	-----------	----	--	--	--	------	----------	----	---	--	--	--



Bolt

Location	Loc Qty	Loc Code
ST340	220	
115589	35	
117161	50	
117514	50	
117688	25	
117872	60	

AN5-34A		Purchased	No				Each	118.0000	x4	4			
---------	--	-----------	----	--	--	--	------	----------	----	---	--	--	--



Bolt

Location	Loc Qty	Loc Code
ST340	118	
116704	8	
117010	20	
117366	20	
117794	70	

Picklist Print

Friday, June 03, 2011 7:42:00 AM

Work Order ID: 69957

Parent Item: D206-667-207BL

Parent Item Name: Crosstube Mid Aft



Start Date: 5/25/2011

Required Date: 5/27/2011

Start Qty: 1.00

Required Qty: 1.00

AN960JD516 NAS1149D0563J Purchased

No

Each

0.0000



Washer

MS21042L5 Purchased

No

Each

1,152.000



Nut



18 18

1117291



4 11613

Location

Loc Qty

Loc Code

ST300

1152

116105

192

116548

260

117441

500

117591

100

117611

100

4

Location/Lot Activity

Wednesday, May 25, 2011 7:08:30 AM

Page 1 of 1

Criteria : All Items All Locations Lot: 65370 All Transaction Types All Dates Report on Locations & Lots

Transaction Type	Item ID/ Item Name	Warehouse Location ID	Reason	Employee ID Location Code	Loc Trans Date	LocQtyPrior/ Location Qty	Lot Number	LotQtyPrior/ Lot Qty	Shelf Life Date	Extended Cost
Issue	D206-667-207BL / Crosstube Mid Aft	Main Warehouse FG	RD1373JAN	FAUT01		1.0000		1.0000		
					1/24/2011	-1.0000	65370	-1.0000		(\$2,570.34)
								-1.0000		(\$2,570.34)
WIP Receipt	D206-667-207BL / Crosstube Mid Aft	Main Warehouse FG	65370	FAUT01		0.0000		0.0000		
					1/24/2011	1.0000	65370	1.0000		\$2,570.34
								1.0000		\$2,570.34

69957

Item	Qty -247	Part Number	Description
1	X	D206-667-247	CROSSTUBE ASSEMBLY (206L MID AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 99.76±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-247" AND BATCH NUMBER ON
INSIDE OF CLIFF PER DART QSI 044 6.4 (VIBRATING STYLUS).
- 7) WEIGHT: 21.1 lbs (-607 = 17.7 lbs)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI
015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

69957

RELEASED
2011-05-24

A	NEW ISSUE	CP	10.12.23
REV.	DESCRIPTION	BY	DATE
DESIGN	97		
DRAWN	97		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.12.23		

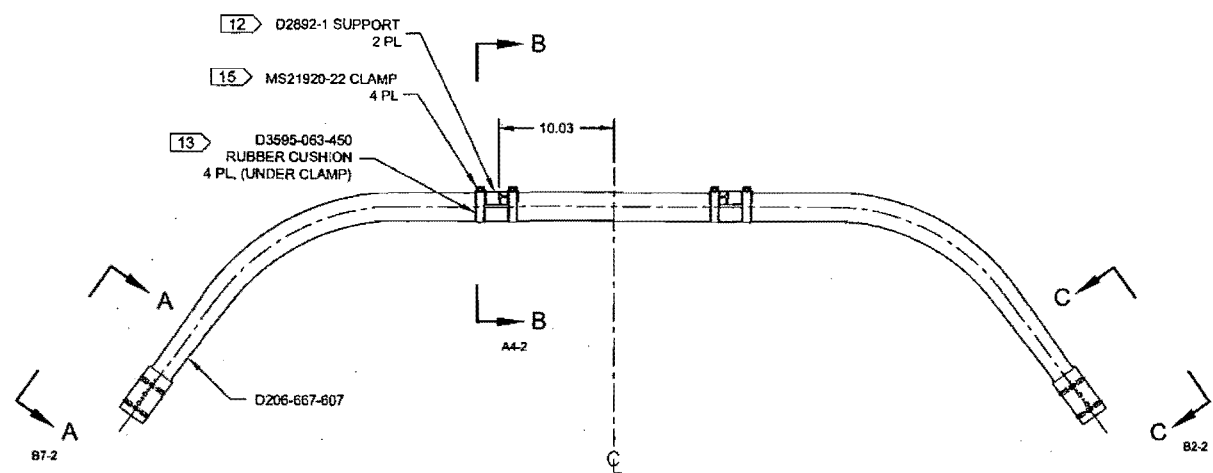
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D206-667-247	REV. A SHEET 1 OF 4
TITLE CROSSTUBE ASSY (206L MID AFT)	SCALE NTS

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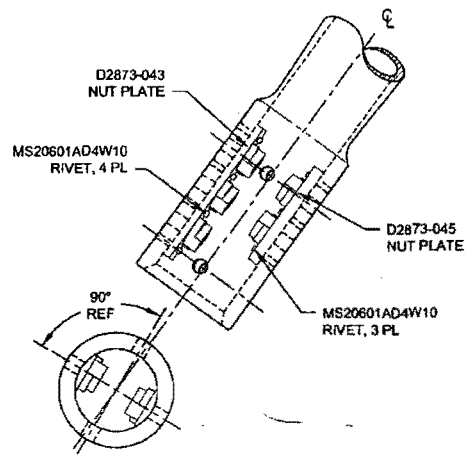
8 7 6 5 4 3 2 1

D
C
B
A

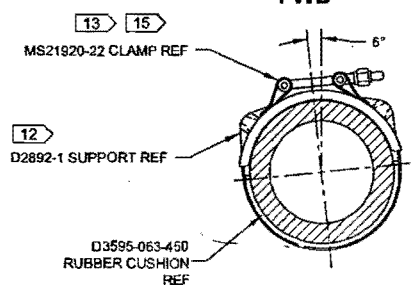
D
C
B
A



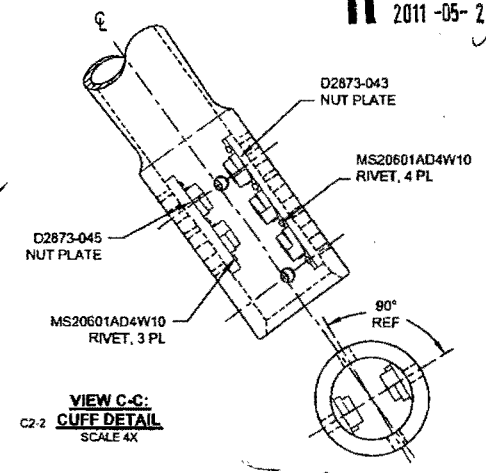
D206-667-247
ASSEMBLY DETAIL
(VIEW LOOKING FWD)



VIEW A-A:
CUFF DETAIL
SCALE 4X



SECTION B-B
SCALE 3X

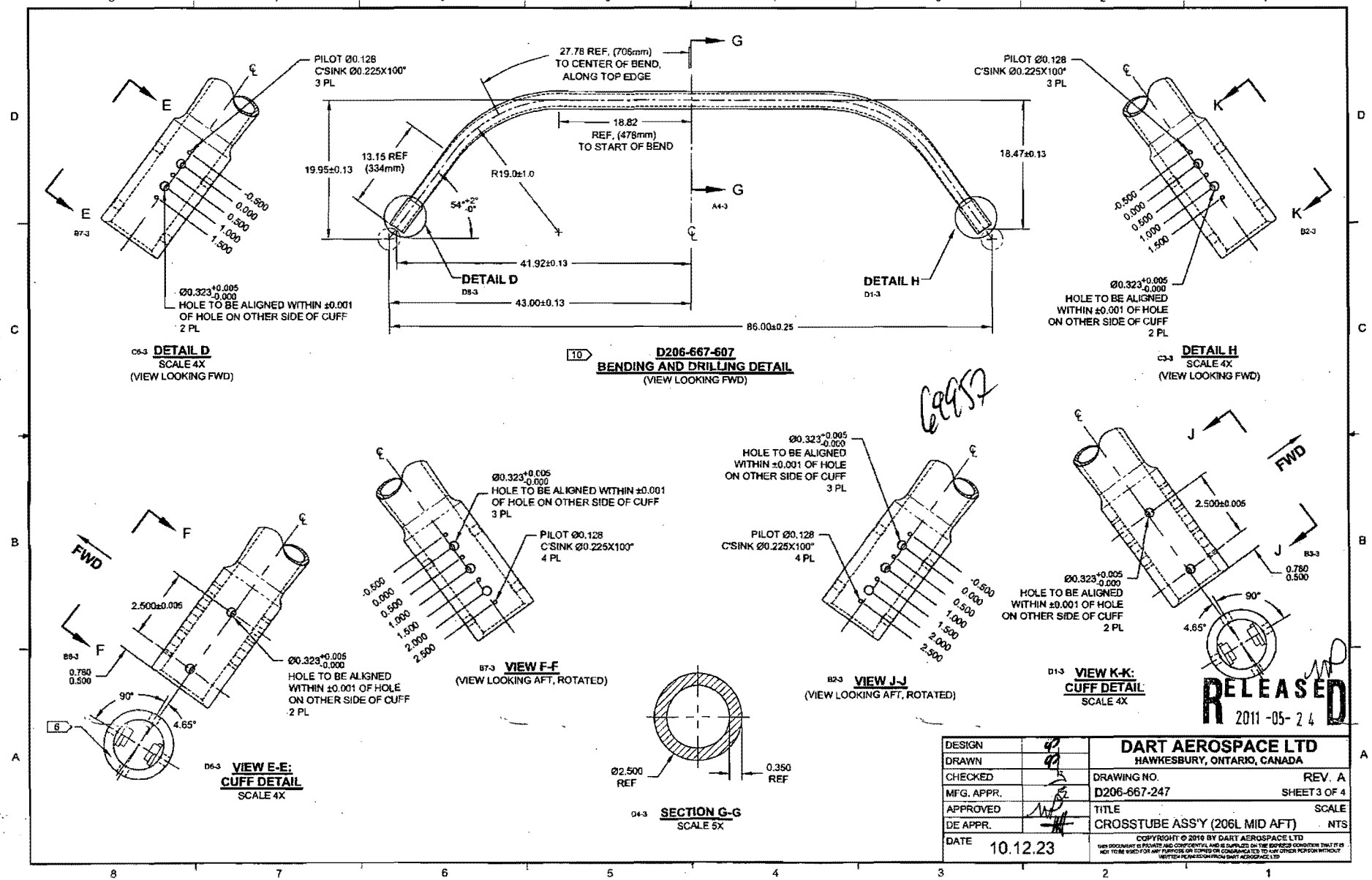


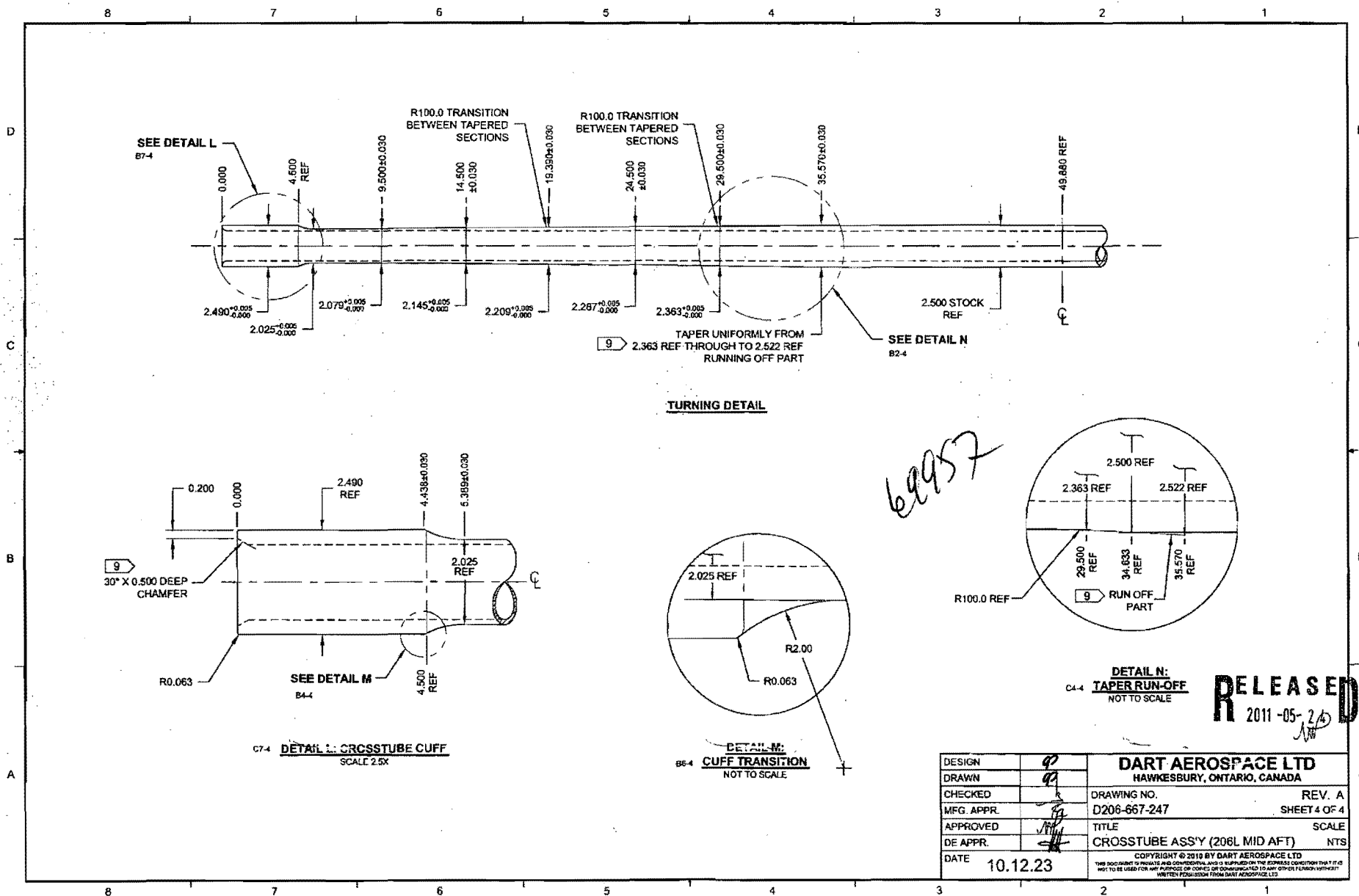
VIEW C-C:
CUFF DETAIL
SCALE 4X

DESIGN	9	DART AEROSPACE LTD	
DRAWN	9	HAWKESBURY, ONTARIO, CANADA	
CHECKED	1	DRAWING NO.	REV. A
MFG. APPR.		D206-687-247	SHEET 2 OF 4
APPROVED	MS	TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT)	NTS
DATE	10.12.23	<small>COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS UNCLASSIFIED AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1





REFERENCE ONLY

DART AEROSPACE LTD.

IIN-D206-667

Page 18 of 19

5.2 MID-HEIGHT CROSSTUBES

Item	Qty -107	Qty -207	Part Number	Description
	X		D206-667-107	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 MID FWD
		X	D206-667-207	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 MID AFT
7	1		D206-667-147	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 MID FWD
8		1	D206-667-247	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 MID AFT
10	*2		D2891-1	SUPPORT
11		*2	D2892-1	SUPPORT
13	*4		D3595-063-395	RUBBER CUSHION
14		*4	D3595-063-450	RUBBER CUSHION
16	*4		MS21920-20	CLAMP
17		*4	MS21920-22	CLAMP
19	4		AN5-32A	BOLT
20		4	AN5-34A	BOLT
21	4	4	MS21042L5	NUT (OR MS21042-5)
22	8	8	NAS1149C0563J	WASHER (OR AN950JD516)
40	*2	*2	D2873-043	NUT PLATE
41	*2	*2	D2873-045	NUT PLATE
44	10		AN5-7A	BOLT
45		10	AN5-10A	BOLT
46	4		AN5-30A	BOLT
47		4	AN5-32A	BOLT
48	12		AN970-4	WASHER (OPTIONAL)
50	10	10	NAS1149C0563J	WASHER (OR AN960JD516)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-147/-247 ASSEMBLIES ABOVE

Work Order ID 65370

PRELIMINARY ISSUE



Page 1

January 13, 2011 1:06:24 PM

Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 1/13/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/20/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: 

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

100



DOCUMENT CONTROL

0.00


DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-207

 11-01-24

110



BENDING MACHINE - CROSSTUBES

0.00


CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-247 using CNC bender program D206-667-207

 11-1-14

120



QC15- Crosstube Dimensional Check


0.00

QC

Memo

0.00

Quality Control

 11.01.17

Work Order ID 65370

January 13, 2011 1:06:25 PM



Page 2

Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 1/13/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/20/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130

0.00



Crosstubes

Crosstubes

Memo

0.00

1-Drill pilot holes in tube using drill Jig DT & DT and drill table DT8577 and tower holes #6 as per QSI0010 and as per Dwg D206-667-247. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT & DT as per Dwg D206-667-247 Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT & DT as per Dwg D206-667-247. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT & DT as per Dwg D206-667-247

6-Drill Fwd rivet holes using drill Jig DT as per Dwg D206-667-147. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT as per Dwg D206-667-247.

8-C'sink holes as per Dwg D206-667-247.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-247 Inside of Cutfl (Donot engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per

11-1-14

SAA

11-01-17

Work Order ID 65370

January 13, 2011 1:06:25 PM

Page 3

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Stop

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Required Date: 1/20/11 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Dwg
D206-667-247

140

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

SAD
11-01-17 ①

150

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

BE ① M/01/17

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

-inspector to pay
Dug only
Sulovitz ②

Work Order ID 65370

January 13, 2011 1:06:26 PM

Page 4

Item ID: D206-667-207BL

Accept

Revision ID: PRELIM

Item Name: 206 Aft Crosstube

Start Date: 1/13/11 Start Qty: 1.00

Required Date: 1/20/11 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

170

Outsource process - NDT per QSI038 4.1

0.00



Outsource2

Memo

0.00

Outsource process - NDT

Liquid Penetrant Inspection as per QSI 038Or
Issue P/O: 13298
LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

180

Packaging

0.00



Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

190

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Ensure results are as per Dwg D206-667-247

Setup Start

Stop

Run Start

Stop

CL 11/01/17 ①

CL 11/01/17 ①

mt 11-01-18 ①

Work Order ID 65370

January 13, 2011 1:06:33 PM

Page 5

Item ID: D206-667-207BL

Accept

Setup Start

Revision ID: PRELIM

Stop

Item Name: 206 Aft Crosstube

Start Date: 1/13/11 Start Qty: 1.00

Cust Item ID:

Required Date: 1/20/11 Req'd Qty: 1.00

Customer:

Reference:

Run Start

Approvals: Process Plan: Date: Tooling: Date:

Stop

QC: Date: SPC (Y/N): Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200	SprayPaint	0.00				ml	11	01	18 (1)
-----	------------	------	--	--	--	----	----	----	--------

SprayPaint
Spray Painting

Memo
1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with ~~White~~ ^{Blue} Primer as per QSI 005 4.2

PRIME:
Start Time: Primer: 115967
Finish Time: Blue

PAINT:
Start Time: Paint: 115509
Finish Time: Clear: 115949

210	QC14- Inspect Spray Paint	0.00							
-----	---------------------------	------	--	--	--	--	--	--	--

QC
Quality Control

Memo
Wrap in plastic bag to protect from scratches

11-01-19

Work Order ID 65370

January 13, 2011 1:06:33 PM



Page 6

Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 1/13/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/20/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220		0.00							
	Crosstubes								
Crosstubes	Memo	0.00							
Crosstubes	1-Install nut plates as per Dwg D206-667-247.								
230		0.00							
	Skidtubes								
Crosstubes	Memo	0.00							
Crosstubes	1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up. A/R Magnobond 6398 : 15580 exp: 07/2011								
	2-Install supports and clamps as per Dwg D206-667-247. Torque clamps to 80-100 in lb								

Work Order ID 65370

January 13, 2011 1:06:39 PM



Page 7

Item ID: D206-667-207BL

Accept



Setup Start



Revision ID: PRELIM

Stop



Item Name: 206 Aft Crosstube

Start Date: 1/13/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/20/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursTool ID Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

0

11-01-20

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

Not Required

11-01-20

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

Work Order ID 65370

January 13, 2011 1:06:39 PM

Page 8

Item ID: D206-667-207BL

Accept

Setup Start

Revision ID: PRELIM

Stop

Item Name: 206 Aft Crosstube

Start Date: 1/13/11 Start Qty: 1.00

Cust Item ID:

Required Date: 1/20/11 Req'd Qty: 1.00

Customer:



Reference:

Run Start

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-207								
	Location: <u>63</u>								
	PPP Rev: _____								
280		0.00							
	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

RD1373JAN

POSITIVE RECALL

EFFECTIVE 11/2/13 AUTH [Signature]
RELEASED UP DATE 11/05/25

~~11/01/24~~ 11/6/24
MF S ~~5~~ B 69957
11-01-24

Picklist Print

January 13, 2011 1:06:22 PM

Page 1

Work Order ID: 65370

Parent Item: D206-667-207BL

Parent Item Name: 206 Aft Crosstube

Start Date: 1/13/11

Required Date: 1/20/11

Start Qty: 1.00

Required Qty: 1.00

Comments: RevA 11.01.13 New Issue EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN5-10A

Purchased

No

Each

191.0000

10

10



Bolt

Location

Loc Qty

Loc Code

ST337

191

115589

54

115700

137

AN5-32A

Purchased

No

Each

226.0000

4

4



Bolt

Location

Loc Qty

Loc Code

ST340

226

114405

16

115016

50

115108

50

115589

60

115698

50

AN5-34A

Purchased

No

Each

64.0000

4

4



Bolt

Location

Loc Qty

Loc Code

ST340

64

113149

2

113226

2

115835

20

116003

20

116191

20

Picklist Print

January 13, 2011 1:06:22 PM

Page 2

Work Order ID: 65370

Parent Item: D206-667-207BL

Parent Item Name: 206 Aft Crosstube

Start Date: 1/13/11

Required Date: 1/20/11

Start Qty: 1.00

Required Qty: 1.00

AN960JD516 NAS1149D0563J Purchased No

Each 34.0000 18 18



Washer



11/12/10

Location Loc Qty Loc Code

ST 34
103694 18
107534 12
109287 4

D206-667-247TRN Manufactured No

Each 0.0000 1 1



Crosstube Ass'y

B65112



11-1-14
11-01-09

D2873-043 Manufactured No

Each 20.0000 2 2



Nut Plate Assembly



Location Loc Qty Loc Code

LG 18
63497 18
ST 2
60981 2

D2873-045 Manufactured No

Each 20.0000 2 2



Nut Plate Assembly



11-01-09

Location Loc Qty Loc Code

LG 20
60982 4
63498 16

January 13, 2011 1:06:23 PM

Shop Packet Print

Page 2

Picklist Print

January 13, 2011 1:06:23 PM

Page 3

Work Order ID: 65370

Parent Item: D206-667-207BL

Parent Item Name: 206 Aft Crosstube

Start Date: 1/13/11

Required Date: 1/20/11

Start Qty: 1.00

Required Qty: 1.00

D2892-1

Manufactured No

Each

36.0000

2 2



Support

Location

Loc Qty

Loc Code

LG

36

41986

4

42785

20

62592

12

D3595-063-450

Manufactured No

Each

65.3390

4 4



RUBBER CUSHION

Location

Loc Qty

Loc Code

LG

28.33897368

53775

5.97897368

58161

3.56

59580

0.12

61465

4.68

63960

14

ST415

37

64171

32

64300

5

MS20601-AD4W10

Purchased No

Each

120.0000

14 14



RIVET

Location

Loc Qty

Loc Code

LG051

120

114245

2

115405

2

115881

16

116186

100

January 13, 2011 1:06:23 PM

Shop Packet Print

Page 3

Picklist Print

January 13, 2011 1:06:24 PM

Page 4

Work Order ID: 65370

Parent Item: D206-667-207BL

Parent Item Name: 206 Aft Crosstube



Start Date: 1/13/11

Required Date: 1/20/11

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

Each

1,353.000

4

4



Nut

Location

Loc Qty

Loc Code

ST139

26

114813

26

ST300

1327

115156

5

115594

500

116104

126

116105

496

116548

200



1/12/11

MS21920-22

Purchased

No

Each

68.0000

4

4



Clamp(per MIL-DTL-8783C)

Location

Loc Qty

Loc Code

LG

68

114077

18

116207

50



11-01-19

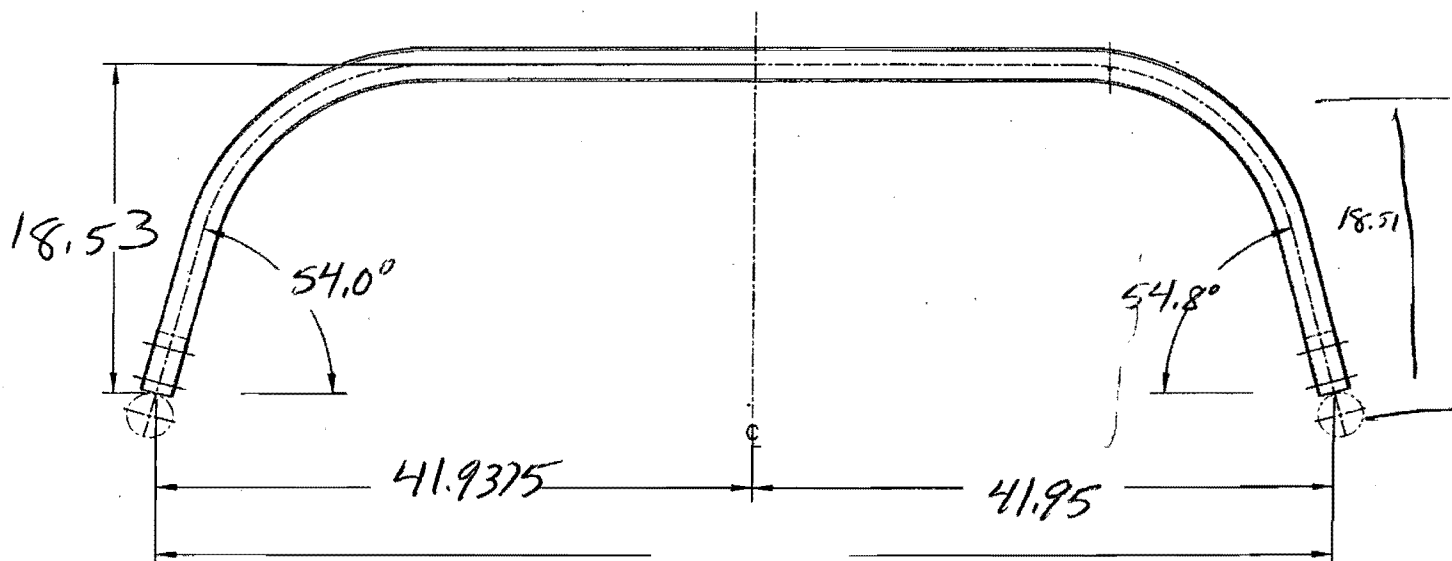
January 13, 2011 1:06:24 PM

Shop Packet Print

Page 4

DART AEROSPACE LTD		Work Order: 1053 20
Description: Crosstube <i>Preliminary</i>		Part Number: D206-667-207
Inspection Dwg: D206-667-207	Rev: A	Page 1 of 1

Required Dimension	Min	Max
Height		
1/2 Span		
Angle		
Total Span		



Comments

QC15 Inspection	<i>CP</i>
Date	11-01-17

Rev	Date	Change	Revised by	Approved
		New Issue		

65370

Item	Qty -247	Part Number	Description
1	X	D206-667-247	CROSSTUBE ASSEMBLY (206L MID AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 289- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 99.76±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-247" AND BATCH NUMBER ON
INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS).
- 7) WEIGHT: 21.1 lbs (-507 = 17.7 lbs)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO
BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI
015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

PRELIMINARY ISSUE

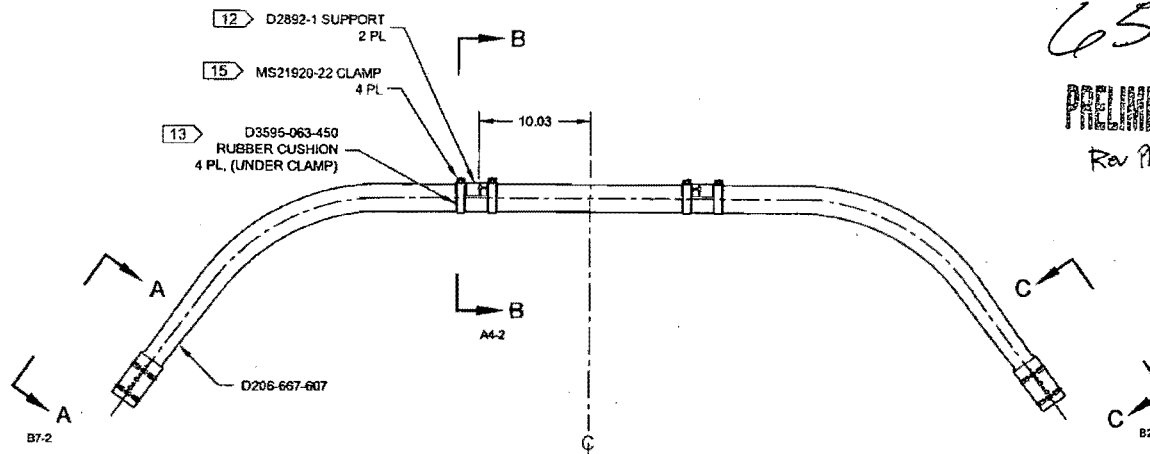
Rev PA1 9/11 of 26

REV.	NEW ISSUE	DESCRIPTION	CP	10.12.23
DESIGN			BY	DATE
DRAWN			DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV.	9/11
MFG. APPR.		D206-667-247	SHEET 1 OF 4	
APPROVED		TITLE	SCALE	
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT)	NTS	
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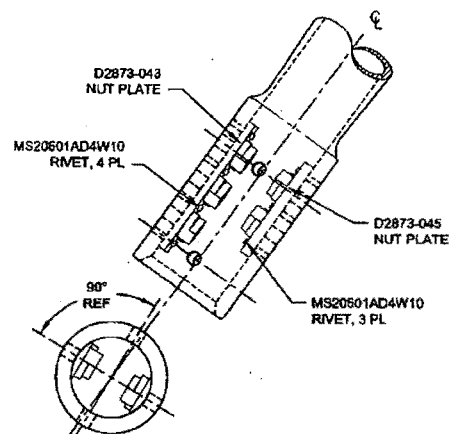
65370

PRELIMINARY ISSUE

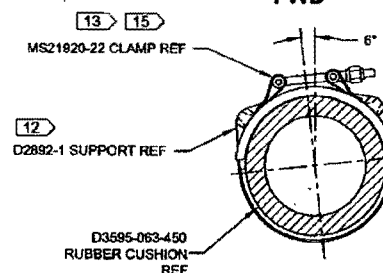
Rev PA1 11.01.06



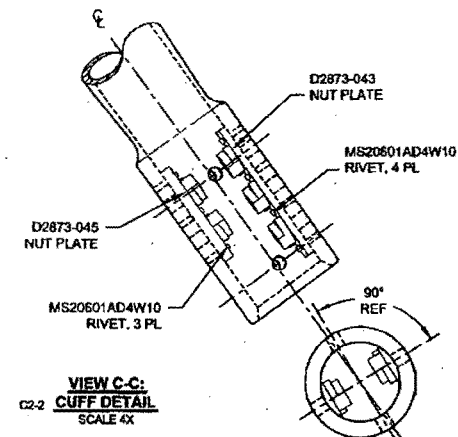
D206-667-247
ASSEMBLY DETAIL
(VIEW LOOKING FWD)



VIEW A-A:
CUFF DETAIL
SCALE 4X



SECTION B-B
SCALE 5X

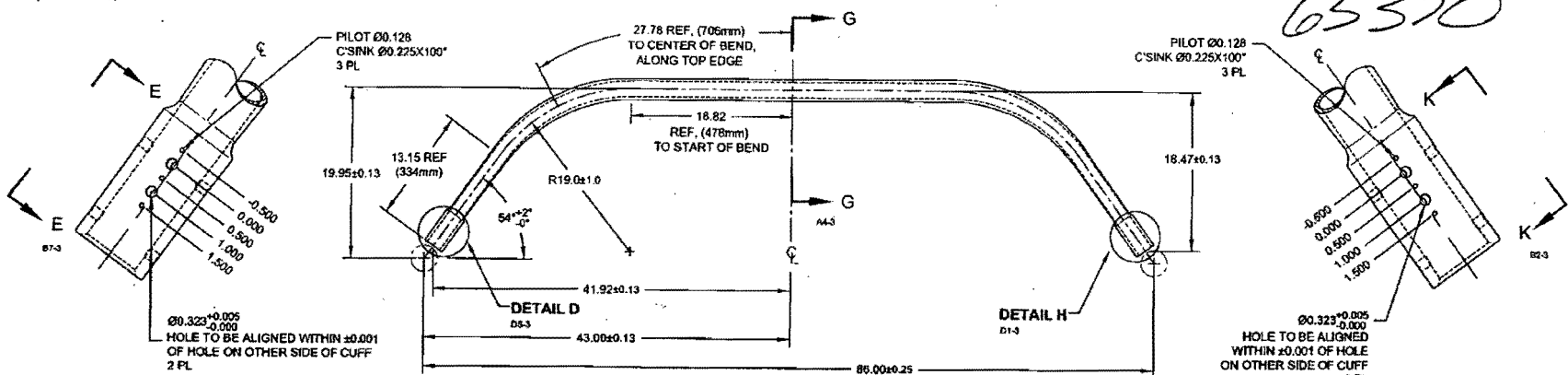


VIEW C-C:
CUFF DETAIL
SCALE 4X

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. #
MFG. APPR.		D206-667-247	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASSY (206L MID AFT)	NTS
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A PA1

65370

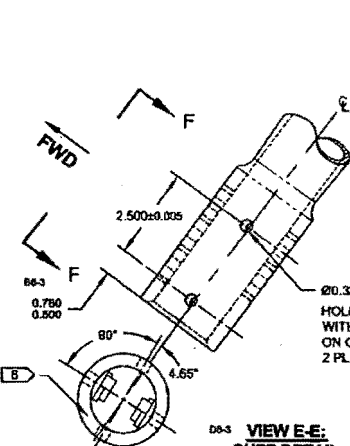


DETAIL D
SCALE 4X
(VIEW LOOKING FWD)

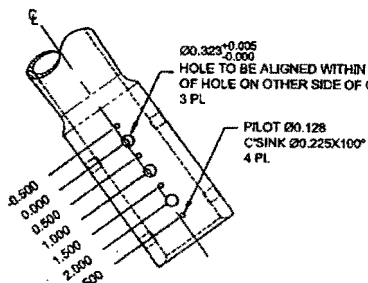
D206-667-607
BENDING AND DRILLING DETAIL
(VIEW LOOKING FWD)

DETAIL H
SCALE 4X
(VIEW LOOKING FWD)

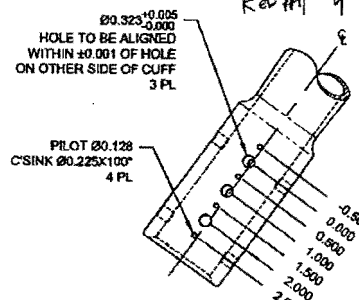
PRELIMINARY ISSUE
Rev A 11.01.06



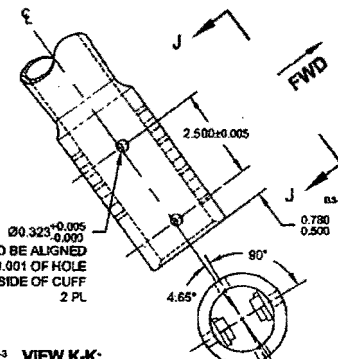
VIEW E-E:
CUFF DETAIL
SCALE 4X



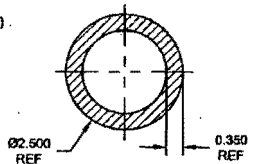
VIEW F-F
(VIEW LOOKING AFT, ROTATED)



VIEW J-J
(VIEW LOOKING AFT, ROTATED)



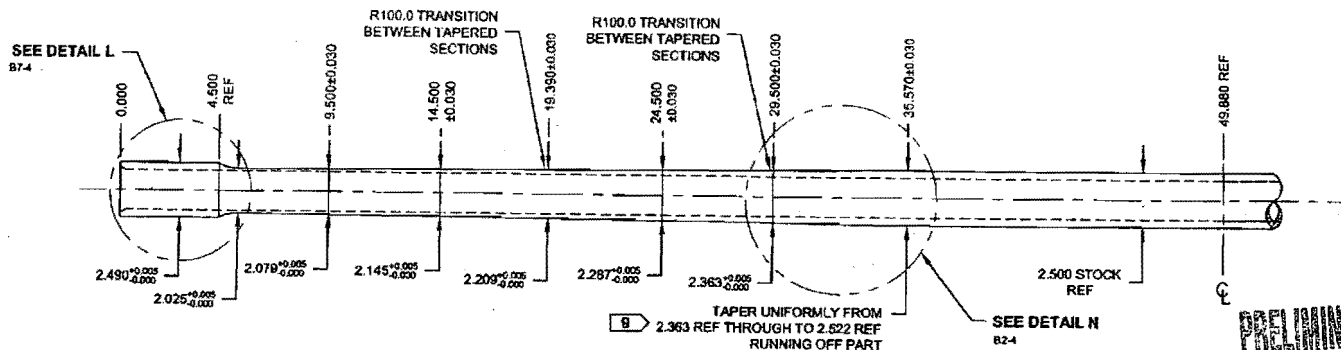
VIEW K-K:
CUFF DETAIL
SCALE 4X



SECTION G-G
SCALE 5X

DESIGN	<i>JP</i>	DART AEROSPACE LTD	
DRAWN	<i>JP</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>JP</i>	DRAWING NO.	REV. A
MFG. APPR.		D206-667-247	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT,	— ITS
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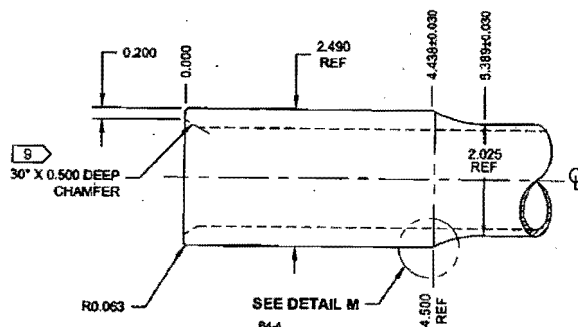
65370



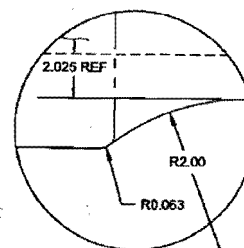
PRELIMINARY ISSUE

Rev PAI 9/11.01.86

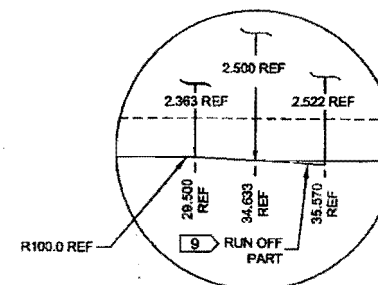
TURNING DETAIL



C7-4 **DETAIL L: CROSSTUBE CUFF**
SCALE 2.5X



B6-4 **DETAIL M: CUFF TRANSITION**
NOT TO SCALE



C4-4 **DETAIL N: TAPER RUN-OFF**
NOT TO SCALE

DESIGN	97	DART AEROSPACE LTD	
DRAWN	97	HAWKESSBURY, ONTARIO, CANADA	
CHECKED	97	DRAWING NO. D208-667-247	REV. A SHEET 4 OF 4
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LIQUID PENETRANT TEST REPORT

P- 05495

CLIENT DART AEROSPACE DATE JAN 17/2011 PAGE 1 OF 1
ATTENTION LINDA LACETTE / CHANTACE / IAN ACUREN JOB NO. 138-11-2015
ADDRESS 1270, ABERDEEN ST. POWO NO. 13298
HAWKES BURN, ON WORK LOCATION AS ADDRESS
ACCEPTANCE STD. ASTM 1417/CSI-033 REV./DATE 2005
PROJECT F.P.I ON 2 "Cross Tubes"
ITEM(S) EXAMINED SEE BELOW

JOB DESCRIPTION PROCEDURE NO. LT002 REV./DATE 2003 TECHNIQUE NO. LT-002 REV./DATE 2008
PART NO. MATERIAL ALODINE ALUMINIUM THICKNESS N/A
SCOPE PERFORMED A WET-FLUORESCENT LIQUID PENETRANT INSPECTION ON 100% OF THE EXTERNAL SURFACE

TEST DETAILS
METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MILCDA FLUX BLACK LIGHT S/N 13298 ☒ OUTPUT > 1000 μ W/CM² ☐ AMBIENT < 2 fc
PENETRANT ZL-67 MINIMUM DWELL TIME 10 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER AL-0 MINIMUM DRY TIME > 10 MIN. OTHER
DEVELOPER SKD-52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE FEB-05-2011
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ☐ METRIC ☒ IMPERIAL

1 Cross-Tube w.o. ID 65369 ✓
2 Cross-Tube w.o. ID 65370 ✓

NO REJECTABLE INDICATION WAS DETECTED
AS PER APPLICABLE STANDARD

"CROSS TUBE"



ITEM ID: - D206-667-107BL
- D206-667-207BL

MA 11.01.18

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.
Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE MATTH MURDOCH DTR # E-44834
TECHNICIAN (SIGNATURE): YVES DESROSIERS REPORT REVIEWED BY:
NAME INITIALS
1ST TECHNICIAN CGSB LEVEL 2 SNT LEVEL 2 CGSB REG. NO. 3049
2ND TECHNICIAN CGSB LEVEL SNT LEVEL CGSB REG. NO.

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

PT Sept 2005